

SYSTEMS AND METHODS FOR SUPPRESSING PRESSURE WAVES USING CORRECTIVE SIGNAL

Abstract of the Disclosure

The systems and methods of the invention offer a method for providing a corrective modulation signal to suppress an acoustic pressure wave in an operational system. The method includes sampling the acoustic pressure wave generated in the operational system and sampling a previously generated corrective modulation signal, the previously generated corrective modulation signal having parameters. The method further includes performing fast Fourier transform processing on the sampled acoustic pressure wave. A pair of single frequency discrete Fourier transform processing is performed on the sampled acoustic pressure wave. Also, the method includes determining the frequency, phase and magnitude of a dominate pressure wave in the acoustic pressure wave based on the fast Fourier transform processing and the discrete Fourier transform processing. Further, the method includes generating a sinusoidal corrective modulation signal to suppress the acoustic pressure wave based on the frequency, phase and magnitude of the dominate pressure wave and the parameters of the previously generated corrective modulation signal, the corrective modulation signal being at substantially the same frequency as, and generally 180 degrees out of phase with, the acoustic pressure wave.

Figures

Figure 1: A diagram illustrating the structure of a document. It shows a vertical stack of pages, with the top page labeled 'Page 1' and the bottom page labeled 'Page 41'. The pages are connected by a vertical line, and the entire stack is enclosed in a rectangular box.